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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/752,683	01/03/2001	Yoichi Yamamoto	2589-9	9757

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EXAMINER	
SHAPIRO, LEONID	
ART UNIT	**PAPER NUMBER**
2673	12

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/752,683	YAMAMOTO ET AL.	
	Examiner	Art Unit	
	Leonid Shapiro	2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 July 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-8, 12-13, 15, rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuzuki et al. (US Patent No. 6,388,716 B1) in view of Suzuki (JP Patent No. 10228010 A) and further in view Bigio et al. (US Patent No. 6,157,143) and further in view of Kashiyama et al. (US Patent No. 6.295,415 B1).

As to claim 1, Tsuzuki et al. teaches an image display device with: a liquid crystal panel for displaying an RGB image including RGB colors; a light source for emitting light toward the liquid crystal panel that the liquid crystal panel receives and uses for display operation (See Fig. 13, item 96, in description See Col. 17, Lines 65-67 and Col. 18, Lines 1-3); at least one optical sensor for measuring how the liquid crystal panel is emitting R (red), G (green) and B (blue) light (See Fig 13-14, items 96, 97, in description See Col.17, Lines 65-67 and Col. 18, Lines 1-35); wherein brightness of the video image controlled according to a measurement value obtained from the at least one optical sensor in order to correct brightness or chromaticity or both of the liquid crystal panel (See Fig 13-14, items 96, 97 , in description See Col.17, Lines 65-67 and Col. 18, Lines 1-35).

Tsuzuki et al. does not show light emission the light source is controlled according to a measurement value obtained from optical sensor in order to correct brightness or chromaticity of both of the liquid crystal panel.

Suzuki teaches lighting of the light source is controlled according to a measurement value obtained from optical sensor in order to correct brightness (See Drawings 1-2, items 1-7,S101-S106, in Detailed Description See Page 1-2, paragraphs 0005-0014). It would have been obvious to one of ordinary skill in the art in the time of the invention to implement Suzuki approach in the Tsuzuki et al. apparatus in order to more reduce power consumption (See Suzuki Abstract).

Tsuzuki et al. and Suzuki do not show a temperature sensor and lamp temperature circuit for determining a temperature of the light source.

Bigio et al. teaches a temperature sensor and lamp temperature circuit for determining a temperature of the light source See Fig. 2, items 21,22, in description See Col.3, Lines 24-28). It would have been obvious to one of ordinary skill in the art in the time of the invention to implement Bigio et al. approach in Suzuki and the Tsuzuki et al. apparatus to add the temperature of the light source as parameter to control light emission of the light source in order to maintain the desired flat panel display luminance (See Col. 2, Line 22 in the Bigio reference).

Tsuzuki et al., Suzuki and Bigio et al. do not show R, G and B light emitted by the liquid crystal panel are measured independently from one another by the at least one optical sensor.

Kashiyama et al. teaches to measure R, G and B light independently (See Fig. 22, items 311R, 311G, 311B, in description See Col.29, Lines 48-66).

It would have been obvious to one of ordinary skill in the art in the time of the invention to implement the measurement of R,G and B independently as shown by Kashiyama et al. in the Tsuzuki et al., Suzuki and Bigio et al. apparatus that at least first, second and third separate and distinct optical sensors for measuring the liquid crystal panel emitting R,G and B

light, so R, G and B light output from LCD panel measured independently in order to implement an automatic brightness correction apparatus (See Tsuzuki et al. abstract).

As to claim 4, Tsuzuki et al. teaches the optical sensor has a light sensor area at least equal to areas of one R, one G, and one B dots added together (See Fig. 14, item 97, in description See col. 18, Lines 15-20).

As to claim 5, Suzuki teaches the brightness and/or chromaticity of liquid crystal panel is corrected by controlling a driving voltage of the light source (See Drawings 1-2, items 1-7,S101-S106, in Detailed Description See Page 1-2, paragraphs 0005-0014).

As to claims 2-3, Tsuzuki et al. teaches the optical sensor has a light sensor area at least equal to areas of one R, one G, and one B dots added together (See Fig. 14, item 97, in description See col. 18, Lines 15-20).

Tsuzuki et al. does not teach a viewing angle of the optical sensor is limited to 10 degrees in all directions and a measurement area of the optical sensor depends on the viewing angle.

As notoriously well known in the art that a measurement area of a sensor depends on its viewing angle and less than 10 degree viewing angle optical sensors could be manufactured. It would have been obvious to one of ordinary skill in the art in the time of the invention to implement a sensor with a limited viewing angle (10 degree) in the Tsuzuki et al. apparatus in order to improve the image quality of the image.

As to claims 6-7, Tsuzuki et al. teaches that the light source is part of a backlight provided on the back of the liquid crystal panel and the RGB image is displayed by receiving

image data transmitted from a transmitting side (See Fig. 13-14, items a1, 96, in description See Col. 18, Lines 7-8).

As to claim12, Tsuzuki et al. teaches an image processing device including a display panel and a light source that emits light that is received and used by the display panel to produce an image (See Fig. 13-14, items 95-97, in description See Col. 2, Lines 14-24) with: at least one sensor for measuring how the (red) R, (green) G, and (blue) B light is emitted from display panel (See Fig.14, item 97, in description See Col. 18, lines 2-3).

Tsuzuki et al does not show brightness or chromaticity or both of the image output from the display panel is corrected by controlling light emission of the light source according to a measurement value obtained from the sensor .

Suzuki teaches brightness or chromaticity or both of the image output from the display panel is corrected by controlling light emission of the light source according to a measurement value obtained from the sensor (See Drawings 1-2, items 1-7,S101-S106, in Detailed Description See Page 1-2, paragraphs 0005-0014). It would have been obvious to one of ordinary skill in the art in the time of the invention to implement Suzuki approach in the Tsuzuki et al. apparatus in order to more reduce power consumption (See Suzuki Abstract).

Tsuzuki et al. and Suzuki do not show a temperature sensor and lamp temperature circuit for determining a temperature of the light source.

Bigio et al. teaches a temperature sensor and lamp temperature circuit for determining a temperature of the light source See Fig. 2, items 21,22, in description See Col.3, Lines 24-28). It would have been obvious to one of ordinary skill in the art in the time of the invention to implement Bigio et al. approach in Suzuki and the Tsuzuki et al. apparatus to add the

temperature of the light source as parameter to control light emission of the light source in order to maintain the desired flat panel display luminance (See Col. 2, Line 22 in the Bigio reference).

Tsuzuki et al., Suzuki and Bigio et al. do not show R, G and B light emitted by the liquid crystal panel are measured independently from one another by the at least one optical sensor.

Kashiyama et al. teaches to measure R, G and B light independently (See Fig. 22, items 311R, 311G, 311B, in description See Col.29, Lines 48-66).

It would have been obvious to one of ordinary skill in the art in the time of the invention to implement the measurement of R,G and B independently as shown by Kashiyama et al. in the Tsuzuki et al., Suzuki and Bigio et al. apparatus that at least first, second and third separate and distinct optical sensors for measuring the liquid crystal panel emitting R,G and B light, so R, G and B light output from LCD panel measured independently in order to implement an automatic brightness correction apparatus (See Tsuzuki et al. abstract).

As to claim 8, Tsuzuki et al. and Suzuki do not show a temperature sensor for measuring surface temperature of the light source, wherein the driving voltage or driving current of the light source is controlled in such way that the surface temperature of the light source is kept constant and the temperature sensor is a thermistor.

Bigio et al. teaches a temperature sensor and lamp temperature circuit for determining a temperature of the light source See Fig. 2, items 21,22, in description See Col.3, Lines 24-28). It would have been obvious to one of ordinary skill in the art in the time of the invention to implement Bigio et al. approach in Suzuki and the Tsuzuki et al. apparatus to add the temperature of the light source as parameter to control light emission of the light source in order to maintain the desired flat panel display luminance (See Col. 2, Line 22 in the Bigio reference).

As to claims 13,15, Tsuzuki et al. teaches optical sensors on a face of the LCD panel (See Fig. 14, items 96-96, in description See Col. 18, Lines 13-14).

4. Claim 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuzuki et al., Suzuki, Bigio et al. and Kashiyama et al. as aforementioned in claim 8 in view Yamomoto et al. (US Patent No. 6,348,910 B1).

Tsuzuki et al., Suzuki, Bigio et al. and Kashiyama et al. do not show the temperature sensor as thermistor.

Yamomoto et al. teaches the temperature sensor is a thermistor (See Fig. 52, step S293, in description See Col.47, Lines 48-52). It would have been obvious to one of ordinary skill in the art in the time of the invention to implement a temperature sensor as a thermistor as shown by Yamomoto et al. in the Tsuzuki et al., Suzuki, Bigio et al. and Kashiyama et al. apparatus in order to more reduce power consumption (See Suzuki Abstract).

5. Claim 10-11, 14, rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuzuki et al. and Suzuki in view of Terasaki (US Patent No. 5,844,540) and further in view of Kashiyama et al.

As to claim 10-11, Tsuzuki et al. teach an image display device with a liquid crystal panel for displaying an image, a light source for supplying light that the liquid crystal panel needs for display operation (See Fig. 13, item 96, in description See Col. 17, Lines 65-67 and Col. 18, Lines 1-3); an optical sensor for measuring brightness of at least part of an image emitted from the liquid crystal panel (See Fig 13-14, items 96, 97, in description See Col.17,

Lines 65-67 and Col. 18, Lines 1-35); a signal reading circuit for converting a measurement value obtained from the optical sensor into a current brightness value of the liquid crystal panel, a brightness setting circuit for permitting entry of specified brightness of the liquid crystal panel, converting circuit for converting an output of the brightness setting circuit into a specified brightness value of the liquid crystal panel (See Fig. 13, items 20, 97, 96, 22, 23, 24, 15, 16, 95, in description See Col. 18, Lines 24-35).

Suzuki teaches the brightness of the liquid crystal panel is corrected by controlling light emission of the backlight (light source) according to the measurement value (See Drawings 1-2, items 1-7,S101-S106, in Detailed Description See Page 1-2, paragraphs 0005-0014).

Tsuzuki et al. and Suzuki do not teach a duty factor setting circuit for outputting a pulse signal whose duty factor depends on an output of the calculator (controller or computer) and inverter for producing a driving voltage and a driving current for the backlight according to the pulse signal.

Terasaki shows a liquid crystal display with backlight control function is provided with PWM dimmer driving circuit including duty factor setting (See Fig. 9 and 10, in description See Col. 11, Lines 49-60) and inverter (See Fig. 22d and 22e, items 52, 58, 59, in description See Col. 2, Lines 43-58). It would have been obvious to one of ordinary skill in the art in the time of the invention to implement a duty factor and inverter circuits as shown by Terasaki in the Tsuzuki et al. and Suzuki apparatus in order to more reduce power consumption (See Suzuki Abstract).

Tsuzuki et al., Suzuki and Terasaki et al. do not show at least first, second and third separate and distinct optical sensors for measuring how the liquid crystal panel emitting R,G and B light, so R, G and B light output from LCD panel measured independently.

Kashiyama et al. teaches to measure R, G and B light independently (See Fig. 22, items 311R, 311G, 311B, in description See Col.29, Lines 48-66). It would have been obvious to one of ordinary skill in the art in the time of the invention to implement the measurement of R,G and B independently as shown by Kashiyama et al. in the Tsuzuki et al., Suzuki and Terasaki et al. apparatus that at least first, second and third separate and distinct optical sensors for measuring how the liquid crystal panel emitting R,G and B light, so R, G and B light output from LCD panel measured independently in order to implement an automatic brightness correction apparatus (See Tsuzuki et al. abstract).

As to claim 14, Tsuzuki et al. teaches optical sensors on a face of the LCD panel (See Fig. 14, items 96-96, in description See Col. 18, Lines 13-14).

Response to Amendment

6. Applicant's arguments filed on 07-01-03 with respect to claims 1, 12 have been considered but are moot in view of the new ground(s) of rejection.

Response to Arguments

7. Applicant's arguments filed on 07-01-03 with respect to claims 10 have been fully considered but they are not persuasive.

In reply, applicant stated on pages 6-7, that R, G and B light need to be measured independently. However, Kashiyama disclose ' a light receiving part 311R which has a sensitivity peak for a red, a light receiving part 311G which has a sensitivity peak for a green and light receiving part 311B which has a sensitivity peak for a blue' (See Fig. 22, items 311, in description See Col. 29, Lines 55-59). So, Kashiyama teaches three separate detectors which measure R, G and B light independently.

In reply on page 7, 1st paragraph, applicant stated also that light not coming from display, assuming that several limitations of claim 10 need to be satisfied in Kashiyama reference. However, Kashiyama teaches how to measure R, G and B light measured independently, without mentioning the source of the light. Applicant's cannot show non-obviousness by attacking references individually where, as here the rejections are based on combination of references. In re Keller, 208 USPQ 871 (CCPA 1981).

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Telephone inquire

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 703-305-5661. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-305-4938. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

ls
August 5, 2003

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